

CLAIMS

We claim:

1. A method of synthesizing bulk quantities of highly crystalline noncatalytic low melting metals, comprising the steps
5 of:

exposing molten noncatalytic low melting metals and microwave plasma containing a mixture of monoatomic oxygen and hydrogen to selected amounts of hydrogen and oxygen in the gas phase;

forming multiple nucleation and growth of noncatalytic low
10 melting metal nanostructures directly therefrom creating highly crystalline metal oxide nanowires devoid of any structural defects having a range of from 20 to 100 nm thick and a range of from ten to a thousand microns long.

2. The method of synthesizing bulk quantities of highly
15 crystalline noncatalytic low melting metals of claim 1, wherein said crystalline metal oxide nanowires form β -gallium oxide tubes, nanowires, and nanopaintbrushes.